

NECAP Science Schema for Assessing Inquiry Constructs Within an Inquiry Response (ER) Task

Essential Questions:

- What does it mean to know and do inquiry? (Four broad areas for instruction & assessment of inquiry have been identified.)
- What constitutes evidence of knowing and doing inquiry? (Assessment items/tasks will be developed using constructs from each broad area.)
- How can evidence be elicited from students? (Examples demonstrate how these constructs may differ at different grade spans.)
- What valid inferences can we make from the evidence? (What inferences does the test design allow for – in terms of inquiry and content knowledge?)

Tri-State Schema for Assessing Inquiry				
Broad Areas of Inquiry to be Assessed	Formulating Questions & Hypothesizing	Planning and Critiquing of Investigations	Conducting Investigations	Developing and Evaluating Explanations
Constructs for each Broad Area of Inquiry (including intended DOK Ceiling Levels, based on Webb Depth of Knowledge Levels for Science) <i>What is it about the broad area that we want students to know and do?</i>	1. Analyze information from observations, research, or experimental data for the purpose of formulating a question, hypothesis, prediction: (DOK 3) 1a. Appropriate for answering with scientific investigation 1b. For answering using scientific knowledge 2. Construct coherent argument in support of a question, hypothesis, prediction (DOK 3) 3. Make and describe observations in order to ask questions, hypothesize, make predictions related to topic (DOK 2)	4. Identify information/evidence that needs to be collected in order to answer the question, hypothesis, prediction (DOK 2 – routine; DOK 3 non-routine/ more than one dependant variable) 5. Develop an organized and logical approach to investigating the question, including controlling variables (DOK 2 – routine; DOK 3 non-routine) 6. Provide reasoning for appropriateness of materials, tools, procedures, and scale used in the investigation (DOK 2)	7. Follow procedures for collecting and recording qualitative and quantitative data, using equipment and measurement devices accurately (DOK 1 – use tools; DOK 2 – follow procedures; make observations) 8. Use accepted methods for organizing, representing, and manipulating data (DOK 2 – compare data; display data) 9. Collect sufficient data to study question, hypothesis, relationships (DOK 2 – part of following procedures) 10. Summarize results based on data (DOK 2)	11. Analyze data, including determining if data are relevant, artifact, irrelevant, or anomalous (DOK 2 – specify relationships between facts; ordering, classifying data) 12. Use evidence to support and justify interpretations and conclusions or explain how the evidence refutes the hypothesis (DOK 3) 13. Communicate how scientific knowledge applies to explain results, propose further investigations, or construct and analyze alternative explanations (DOK 3)
Important DOK NOTES: Assessing combinations of constructs will likely yield a higher DOK ceiling than assessing constructs separately. DOK Level 3 – if constructs are assessed in relation to each other (e.g., Formulating questions AND Planning Investigation 1+ 4+5+6; or all constructs for Conducting an Investigation 7+8+9+10) = the ceiling DOK = Level 3 . Ceiling DOK Level 4 = if constructs for all 4 areas - developing a research question, designing and conducting an investigation, drawing conclusions, and communicating results are all included.				

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